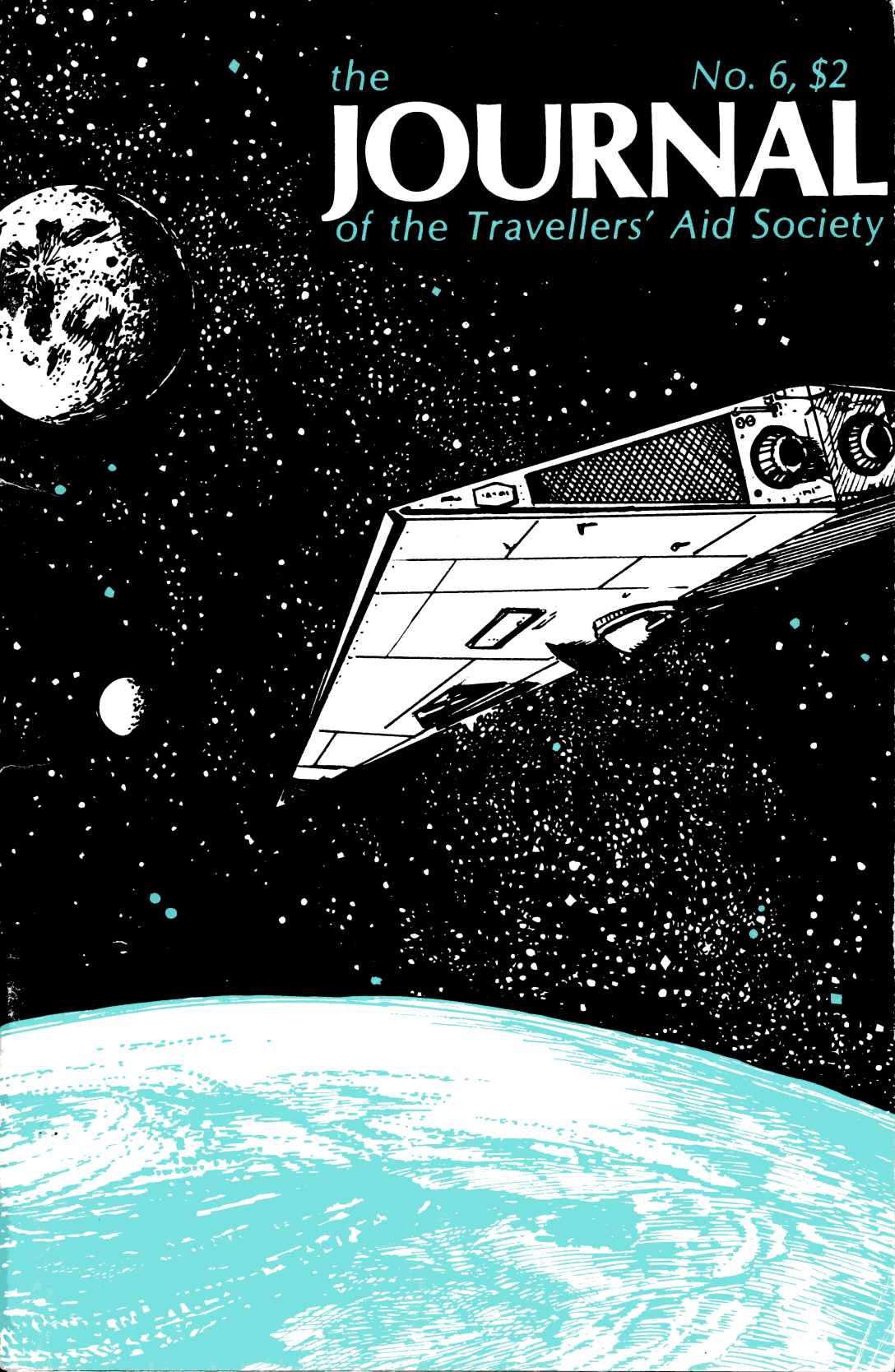
the

No. 6, $2

JOURNAL

of the Travellers' Aid Society



THE TRAVELLER LINE

The following **Traveller** items are published by GDW. All are available through better hobby shops everywhere. If you can't find them, ask the shop manager to order them for you through his hobby distributor.

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GAME DESIGNERS' WORKSHOP
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the JOURNAL of the Travellers' Aid Society

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Dates in this issue of the *Journal* are given in accordance with an arbitrary Imperial calendar of 365 days. The expression of date consists of a three-digit day number (showing the current day of the year), followed by a dash and a four-digit year number (showing the current year since the founding of the Imperium).

The date of this issue is **273-1106;** or the 273rd day of the 1106th year of the Imperium.

The Journal of the Travellers' Aid Society is a science-fiction gaming magazine dedicated to Traveller, GDW's role-playing game set in the far future.

Editor— Loren K. Wiseman
Spiritual Advisor— Marc W. Miller
Publisher— Game Designers' Workshop
Artists in this issue: Liz Danforth— p 30, p 38; William H. Keith, jr— cover, p 10, p 12, p 28, p 32.

WINNER — H.G. WELLS AWARD: BEST MAGAZINE COVERING ROLE-PLAYING 1980.

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The *Journal of the Travellers' Aid Society* is published quarterly with an individual issue price of $2. One year subscriptions are $7 in the United States and Canada. Foreign Subscriptions (outside the US or Canada, and not to FPO or APO addresses) are $14 per year, which includes air mail postage. Please make all payments in US funds drawn on a US bank. Advertisers should inquire for an advertising rate card.

Submissions: We welcome articles and illustrations for the Journal. Please inquire before submitting manuscripts; we will send a style and want sheet.

From the Management

In the last issue, *From The Management* asked for feedback on the Journal's first year from the readers. The response was large and the opinions expressed diverse. Almost every letter we received was critical of some aspect of the Journal, and overflowing with praise for everything else. The trouble with this is that very few letters were critical of the same point! Overall, we were urged to change almost every feature of the Journal, and begged to leave every feature exactly as it was.

There was, however, some common ground. Nearly everybody was satisfied with the new size for the Journal. The few dissenting voices wanted it to be larger, or wanted us to come out bi-monthly or monthly (sorry, but not yet). The response was overwhelmingly in favor of two Amber Zones per issue also. One reader went so far as to say that AZs were the main reason he subscribed.

Opinion was divided over whether to include non-Traveller material in the Journal. About one third thought it was OK, about one third felt that a small amount was fine, as long as it was not the main feature of an issue, and a small but vocal minority felt that the Journal should be completely Traveller oriented. We will continue to publish a small amount of non-Traveller material, but the main focus of the Journal will always be on Traveller and related items.

Most people disliked advertisements in the Journal, but in the next sentence they admitted that they were a necessity of publishing. A few actually liked ads which dealt with Traveller-related items, such as miniatures or supplemental material.

A large number of readers wrote to say they thought that the Journal should refrain from extensive product reviews, except for thumbnail sketches of the sort already included in *Just Detected.* One reader felt that we should devote a whole column to licensed Traveller playaids. We'll consider that one.

There was some response to the idea of a "classifieds" column, but not enough to make the idea worthwhile . . . at least not yet. We will keep this idea in mind in coming months also.

Response was good to the idea of an article or two on the use of miniatures in Traveller, and work has begun on preparing several. Work is also underway on a new feature called *Contact,* to deal with alien intelligences. *Contact* will be a short description of one of the intelligent races of our universe, along with Traveller statistics on them. The major races will be among the first covered, but there will be plenty of minor ones as well. All in all, we think the Journal's second year should be even more interesting than the first!

The greatest flaw in the Journal's first year (at least from my viewpoint) was mentioned in only one letter. The last few issues of the Journal have been very much off schedule, issue number 5 being almost 9 weeks late, and this issue off by about as much. This delay has been caused by a combination of bad luck and bad planning, and we ask that the readers accept our deepest apologies for it. We are laboring mightily to get back on schedule. Issue number 7 will be slightly late, but the

Journal will be back on schedule by the March issue, and will stay that way.

The summer convention season has just ended, and all of us at the Workshop have recovered from the pressures of the season fairly well. I would like to take some space here to deal with a question we are often asked by players of Traveller: How much can I, as referee, modify the rules, and how closely must I stick to the published Traveller Imperium?

First of all, a few words about the published Imperium. We publish supplements and adventures set against a backdrop of fairly wide scope. This includes maps, histories, cultural details and so on in order that our material will have a consistent realism about it. We feel that the universe we have created is interesting, realistic, and consistent. All of this is calculated to help the referee who feels he or she does not have the time or the imagination to create, populate, and run a universe. Referees who do not wish to use our materials or who wish to use only parts of it are free to do so, adapting anything to fit as is necessary.

The extent to which referees may modify the Traveller rules books is almost unlimited. Referees are free to make any changes to the rules they may wish, but with a few caveats:

First: Bear in mind that the rules are interlinked to a great degree. A slight modification to one rule can have repercussions in many other rules. Be prepared to modify all the affected rules for consistency's sake.

Second: Be careful not to destroy balance of play. It may be fun for players to have free choice of psionic powers, but when everybody can kill with a thought, where is the challenge? Every move a player makes should have an element of risk (large or small) and likewise an element of reward. Rules changes which destroy the balance of play should be avoided.

Third: Do not modify the basic tenet of Traveller— that the speed of communication is limited to the speed of travel. With instantaneous communication allowed between stars, the balance of the rules is upset irrevocably.

Referees who change the rules without regard to the repercussions of those changes are doing their players and themselves a grave disservice.

BACK ISSUES

As of October 1, 1980, all back issues of the Journal are out of stock. For various reasons, back-issues will not be reprinted. In response to great demand, we will publish a booklet in January entitled "The Best of the Journal, Volume 1" which will contain the major articles of the first four issues. It might be of interest to some of you that all issues of the Journal are in the Library of Congress (due to the mandatory deposit provisions of the copyright law) and may be available to you through inter-library loan. Check your local library for details.

Loren K. Wiseman

Traveller is available overseas through GDW distributors in the UK and Australia.

United Kingdom: Traveller (and its additional booklets, adventures, and supplements) is printed under license from GDW in the UK by Games Workshop, 1 Dalling Rd, Hammersmith, London, W6.

Australia: Traveller is imported and distributed by Jedko Games, 18 Fonceca St, Mordialloc, Vic. Australia.

JUST DETECTED

Games:

Timelag

Combat across vast reaches of space, with Einsteinian time-dilation effecting the game directly.

120 counters, one 10 x 14 map, rules and charts in a polyvinyl bag. $3.95

Design- Mike Vitale

Publisher- Gameshop, 46 Dougherty, Manchester, CT, 06040.

War of the Worlds

Game version of H. G. Wells' classic story of Earth's invasion by Martians.

216 counters, one 19½ x 21½ map, rules and charts in a box. $9.95.

Design- Allen D. Eldridge

Publisher- Task Force Games. Task Force games are available from hobby shops, or by mail from Judges Guild, RR 8, Box 9, Decatur, IL 62522.

Starfire II

Fighters vs gigantic starships in deep space. Can be played alone or in combination with Task Force's Starfire.

108 counters, one 16 x 21 map, and rules in a polyvinyl bag. $3.95.

Design- Barry Jacobs

Publisher- Task Force Games.

Robots

Players design, build, and send robots into combat against each other.

108 counters, one 16 x 21 map, and rules in a polyvinyl bag. $3.95.

Design- Mike Joslyn and William F. Ferguson III.

Publisher- Task Force Games.

Shooting Stars

Tactical fighter combat in space.

80 counters, 320 console markers, console display sheets, one 21½ x 27½ map, rules and charts in a box. $17.00.

Design- J. Stephen Peek

Publisher- Yaquinto Publications, Inc, PO Box 24767, Dallas, TX, 75224.

Magazines:

Different Worlds

The Aug/Sep 1980 issue , No. 9, contains a five-page article by Marc Miller and Frank Chadwick on the Imperium, including a map, historical data, a chronology, and a great deal of other background data. Single copies are $2.50 from Different Worlds, Box 6302, Albany, CA 94706.

The Space Gamer

The October issue, No. 32 was TSG's special Traveller issue, containing a review of Azhanti High Lightning and articles on alternate character types, scout ship plans, and a look at available Traveller play aids.

Available from The Space Gamer, 7207 Onion Crossing Dr, Austin, TX 78744.

Play Aids:

Evening Star

A hollowed-out cylindrical asteroid provides the background for numerous adventures.

One 27 x 15 map of the asteroid and a 33 page booklet detailing the history and inhabitants of the Evening Star. Approved for use with Traveller. $7.95.

Design- Robert Warfield

Publisher- Robert Warfield, PO Box 1333, Midland, TX 79702.

continued on page 36

TRAVELLER NEWS SERVICE

REGINA/REGINA (0310-A788899-A) **Date: 186-1106**

¶ A spokesman for Tukera Lines today announced indefinite suspension of high capacity commercial service to the Regina subsector pending outcome of the official investigation of the Trimkhana-Brilliance tragedy.

¶ Less than a month ago, the 800 ton liner Trimkhana-Brilliance was lost with 217 lives due a jump capacitor discharge immediately prior to jump. While all four survivors of the disaster are still under intensive medical care, interviews with the one surviving crew member indicate that the capacitor discharge may have been due to a delay in jump after full charging due to a failure of the port inboard L-hyd drop tank to separate completely.

¶ A Tukera Lines official press release stated that a team of company engineers would be "taking a long hard look at General Shipyards quality control standards."

¶ In the wake of the anouncement of high-capacity service suspension, General Shipyards common stock fell 34 points in the Regina exchange before exchange officials suspended trade. Oberlindes Lines stock closed up 5 3/8. Ω

EFATE/REGINA (0105-A64930-D) **Date: 148-1106**

¶ Reliable sources in the defense establishment have admitted in private that the Imperial Armys' 1197th Separate Light Infantry Brigade has been engaged in counter-insurgency operations in the Vandere district of Kormoran (Efate's northern continent) for the last eight months. When asked to comment on Rear-Admiral Lord Santanocheev's recent claim that no Imperial army or marine units had been committed, they declined. One official did explain, however, that the brigade was only employed in mopping up operations and had been inserted only to allow rotation of indigenous troops out of combat. "Once all of the local units in the Vandere have had a spell in the rear, the 1197th will be pulled out," he said. Ω

Traveller News Service is another Imperium-wide benefit of membership in the Travellers' Aid Society.

Fleshing Out the Belt

by Roberto Camino

This Belter variant consists of a series of modules, generally independent of each other. Players can therefore mix and match to whatever degree they can agree on. No guarantees are made concerning balance.

MISSIONARIES

The belt's reputation as a mineral storehouse is exceeded only by its notoriety as a hotbed of vice and temptation, and rightly so. The church, steadfast in its determination to save souls whereever they may lurk, has dispatched missionaries to the belt. As inducement to the path of redemption, the missionaries offer loans with no interest (usury being anathema to the church) and a thirty-turn grace period. The loans can be used for any project except piracy. In return, the player must embrace church doctrine, the practical results being that he may not indulge in piracy or attack any other players (except in self-defense...the other player must fire first).

At any time, another player may denounce the born-again player as a hideous sinner, a satanist or some other form unfit to retain church benefits, especially the loan. The culpability of the accused player is determined in a manner similar to elections in the optional rules. All players vote (vouch) on the denounced players guilt or innocence, their number of votes being determined in the usual manner, but the votes of a player in good standing with the church count double. If the accused is participating in the work-parole program, (details in the convict rule) he or she receives an additional 100 votes of innocence. The ratio of votes of guilt to votes of innocence is cross-indexed with the die roll on the trial table. A guilty verdict results in the accused being ejected from the church; innocence means that he has been exonerated. He is entitled to the loan, and may not be accused again. Innocence* means that in addition to the accused being exonerated, the accusor is determined to be malicious. He may not apply for a church loan, and must return any remaining from any he now has. Defaulting on a church loan carries the same penalties as defaulting on a bank loan.

COMMISSIONER OF THE OFFICE OF BELT MANAGEMENT

An election is held every 208 turns, similar to the election in the optional rules for the OBM. A player may not serve as commissioner more often than every third term. The commissioner may impose a tax (1, 5, 10, 15, or 20%) on the sale of ore, gas or any other item. The money goes to the PKF budget. He may bar mining of a certain class of asteroid for a maximum of 10 turns every 100 turns. He may order a safety inspection once every 100 turns. All ships must leave immediately for Haven, and may not perform any activity that slows them down. Once in Haven, the ship spends one turn and is then free to go. If an item on the ship is not functioning at the time of the

VARIANT

inspection, the owning player must pay to have it fixed (see Tanker and Tow and Repair Service module).

The PKF is obligated to enforce the decrees of the OBM. The penalty for violation of the OBM's decrees is seizure of the offending player's equipment actually engaged in the violation (a mine, smelter or ship in the case of working on a protected asteroid, a ship in the case of safety inspections). The commissioner may not apply decrees discriminatingly against players. He may, however, give prior knowledge of a decree for a bribe.

CONGLOMERATES

The era of the belt as the happy hunting ground of the individual prospector is rapidly coming to a close. Large Earth-based conglomerates are establishing tentative footholds in the belt. A player may assume the role of a regional manager of DuPont, Mitsubbishi, Fiat, Krupp, etc. He starts out with a leader, two crews, one troop, a factory ship, and 1000 credits. His cash balance is divided by 4 when determining victory.

Factory Ship (use carrier counters): The factory ship has four hardpoints, 21 life support points, and 1000 cargo hold points. It comes equipped with 20 K worth of equipment, player's choice. It has the capabilities of one mine and one smelter, at no cost of cargo space. Due to its great size, it takes 3 TX hits to destroy it. It uses the carrier column for target type on the hit table; subtract 1 from the die roll. The ship itself needs two crews or one crew and a leader to man it. The built-in mine/smelter requires one worker. Fuel cost/capacity is 300/20. Maintenance cost is 150.

PIRATES

A third world mineral cartel, being hurt competitively by the belt, decides to drive belt prices up by financing piracy. Any player except a PKF and regional manager may secretly accept their backing. They will grant him 2000 credits and convert a ship into a pirate.

In a seeker, the mining laser is replaced by a twin laser (treat as two regular lasers for combat purposes). A missile rack is also installed. The cargo hold is removed, to be replaced with a constant .50 thrust fusion engine identical to that on patrol ships, including fuel cost/capacity. The same modifications can be made to a carrier. The cargo hold is reduced to 100 points. Maintenance cost for both ships is 25. Since these ships are constructed to be indistinguishable from ordinary ones, the pirate need not reveal their weaponry until used.

ESPIONAGE

The PKF player secretly designates one of the asteroids in the contra-terrene development area as the site of highly sensitive research. If a player can drop a dedicated crew or worker and a leader at the asteroid for two turns and return to one of his installations, he receives a payoff of 50K. The PKF player is not obliged to give chase for more than 10 turns, but if he does not capture or kill the leader he suffers a budget cut of 300 credits.

TANKER AND TOW and REPAIR SERVICE

Belt Tow and Fuel Garage (stations on Marketplace and Juno) offers emergency tanker and repair service. Its ships will go anywhere except to the CT area, magnetic sling channel, and naval ore reserve. Cost for tanker service is 500 credits plus triple the regular cost for fuel delivered and fuel used by the tanker to reach the delivery

point and return to the station. The tanker is a modified carrier with a fuel capacity equal to its cargo hold; it has no other capacity. The Tow/Repair service can repair any damage in two turns, but cannot replace destroyed items. It will tow any ship at double the repair ship's regular fuel consumption rate. It will also supply fuel. The service costs 1000 credits, plus cost for fuel as per the tanker listed above, plus a charge of Cr500 for every individual item repaired. The tow/repair ship is a standard carrier with a fuel capacity of 50 and cargo hold of 100.

LLOYD'S OF LONDON, MARKETPLACE BRANCH

Lloyd's will insure any item that a bank would finance. Standard rate is 1% of the item's value every 10 turns or fraction thereof. Lloyd's will only underwrite the true value of the item, including added equipment, but will pay 100% of the item's value when the policy is honored. For standardization, the first turn of the first 10 turn interval starts with the first game turn, even if no one has taken out a policy. Policies will be honored for any loss, unless it was due to the player initiating combat (i.e. firing first). As losses occur, rates go up, calculated individually for each item. The first loss of the item raises the rate by 5% second to 15%, and so on for all players (even those without any claims). Of course, a player is not charged unless he currently has a policy.

HIRING OUT

Asteroid Fitting Out: Krupp has expressed interest in moving asteroids from the belt to other locations in the system for use as raw materials. It will pay 10 K to the discoverer of any asteroid not in the naval reserve or CT area that has a yield of 30 units per turn. Example: A gas asteroid is rich (15 units) and its extensiveness is two. 2 x 15 = 30; it meets the requirements.

Krupp will pay 20 K for a 40 unit asteroid, 30 K for a 50 and 50 K for a 60+. They will also pay 500 credits per turn to any leader for assistance in preparing an asteroid for movement. The leader must be at the asteroid and may not perform any other function. It takes 10 leader turns to prepare the asteroid. This procedure starts whenever a suitable asteroid is found. Once the asteroid is prepared, it is assumed removed from map, and once Krupp has bought the rights to it, no one may mine it.

Construction of a second linear mass accelerator: The Contra-Terrene Development Agency is constructing a linear mass accelerator on the white asteroid in the CT area. For the initial 30 turns of its construction, starting 20 turns after the start of the game, it will rent seekers and carriers for "gopher" duties (general purpose transport duties). It will pay 400 credits per turn for a seeker and 1200 per turn for a carrier. Players must provide crews or leaders to man the ships. They may ignore morale rules for CT for this mission. The player need not pay maintenance, fuel, or salary for units while on this assignment. the player must commit the ships to a certain time period, for the duration of this time, simply keep the counters off the board. Each player may only rent out one group of ships in this manner.

CONVICTS

Under pressure to maintain some semblance of law and order, PKF has thrown into the prison at Haven some characters that are lawless even by belt standards. At the same time, the PKF budget is tight. Consequently, the PKF has proposed a work parole program. Any (desperate) player may take

advantage of it. There are two workers, two crews, three troops, and two thugs in the program's labor pool. A player may hire any of these units at a salary of 100 credits less than standard. These units, however, add one to their die roll on the labor relations table, and may riot at any time. The hiring player must roll two dice during each market phase for each convict unit; on a 12 they riot. Their demand in this case is not back pay per se, but back payment of double the difference between their salary and that of a regular unit of their type, plus amnesty. A player may return a convict unit at any time by merely declaring his intent to do so. If a player is accused of poor morals under the missionaries rules and is currently participating in this program, he receives an additional 100 votes of innocence.

THE SHOPPING LIST

Camouflage: Includes burrowing underground, shielding, decoys, electronic blackboxes, and a variety of means to aid in concealment. Each installation unit must be camouflaged separately. Camouflage costs Cr1000 per level per installation. Included in the cost is the ability to conceal one ship at the same level as the installation. Camouflaged installations need not be revealed unless a ship with a sensor level higher than the installation's camouflage level passes through the hex. Players do not have to inform the PKF player of the purchase of camouflage, just note it in their records.

Sensors: Sensor equipped ships may locate installations of a lower level than their sensor's level. All ships (except patrol ships which have level 3 sensors) start with level 1 sensors. Therefore, a level 1 camouflage installation is immune to detection from these ships. Sensors cost Cr1000 per level per ship.

Drop Tanks: All ships except tanker and repair carriers may be equipped with drop tanks. Drop tanks have a fuel capacity equal to the ship's intrinsic fuel capacity, thereby doubling the ship's total capacity. Drop tanks may be jettisoned at any time, as the presence of a drop tank with any fuel causes DX hits to be treated as TX hits upon the ship. Ships automatically use the fuel in the drop tanks first. Drop tanks for seekers and carriers cost 2000 credits; tanks are reusable if not jettisoned.

Ships: Players may buy fighters, tankers, tow and repair carriers, and factory ships.

A fighter has a 2G variable thrust fusion engine; it may move up to two hexes in any direction in one turn. Fuel cost/capacity is 200/10. Fighters are armed with two lasers and two missile racks, have 2 life support points, and no cargo hold. They cost 20 credit to maintain, and 100 K to buy.

Tankers cost Cr10 to maintain, and 55 K to buy.

A tow and repair carrier costs 100 credits to maintain (this included the average cost of repair parts) and 60 K to buy.

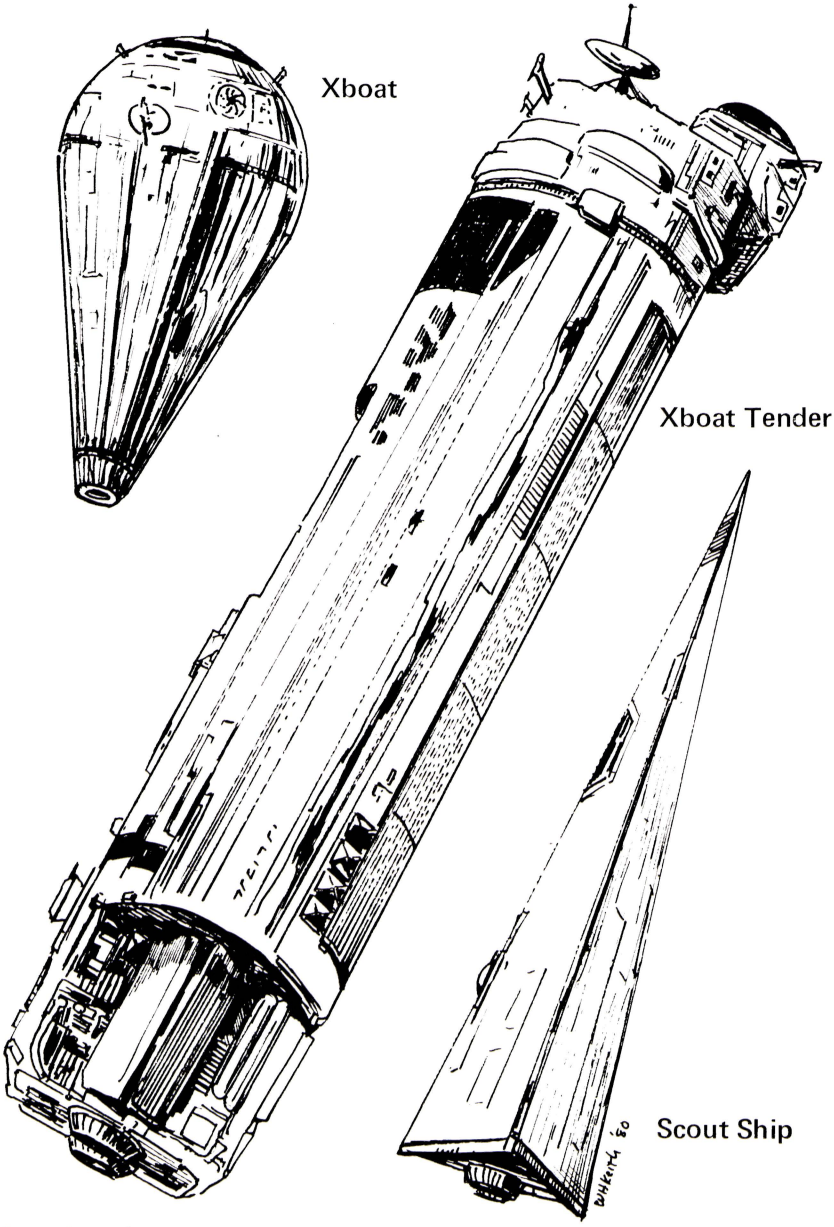
A factory ship costs 150 credits to maintain and 200 K to buy.

TRIAL TABLE

Die Roll	*Up to 1-3*	*1-2*	*1-1*	*2-1*	*3-1*
1	I*	I*	I*	I	I
2	I*	I*	I	I	G
3	I*	I	I	G	G
4	I	I	I	G	G
5	I	I	G	G	G
6	G	G	G	G	G

I* = Innocence*
I = Innocence
G = Guilt

Xboat



Xboat Tender

Scout Ship

Typical Humans

The Imperial Interstellar Scout Service

By Loren Wiseman and Marc Miller

In the last century before the end of the Long Night, the Sylean Federation began its coalescence into a power wielding state.

A major arm in this move was the Sylean Federation Scout Service. The SFSS was established with two main functions: first, the exploration of neighboring regions and contact or recontact with their inhabitants; and second, the use of the advanced Sylean technology to lure planets into the federation.

Largely due to the efforts of the scouts, the Sylean Federation rapidly turned into an empire— the Third Imperium, and the Sylean Federation Scout Service became the Imperial Interstellar Scout Service (IISS).

Over the centuries, the IISS became a major service of the Imperium, equal in stature to the navy and army. With the passage of time, the exploration and recontact function of the service was severely diminished. Naturally, the IISS found other jobs to do— to maintain its numbers and budget. There are currently seven offices in the IISS:

THE SURVEY OFFICE

The function of the survey office is to consistently map all areas of the Imperium (stars, worlds, planetoids, and all hazards to interstellar and interplanetary navigation), to constantly correct and update these maps as often as is necessary, and to place and maintain directional beacons and other aids to navigation.

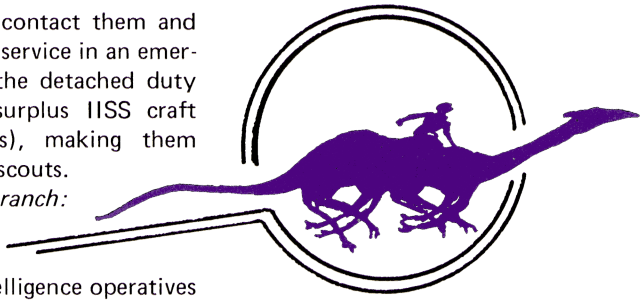
In addition to mapping the Imperium, the survey office also sends mapping parties outside the empire.

THE DETACHED DUTY OFFICE

The detached duty office was created to keep track of all retired and detached scout personnel in order to

be able to swiftly recontact them and return them to active service in an emergency. In addition, the detached duty office controls all surplus IISS craft (scouts and couriers), making them available to some ex-scouts.

The Intelligence Branch: The IB recruits ex-scouts (and others) for duty as covert intelligence operatives throughout the Imperium and beyond. The reports of these operatives, as well as the logbooks of each ex-scout (which must be presented each time the ship services at a scout base) provide a major source of information for the Imperium.



THE COMMUNICATIONS OFFICE

The communications office operates the xboat and courier services.

The xboat network was established to provide for the fastest possible transmission of information for official, commercial, and private purposes.

Xboats: The ships of this network have been specifically designed for the job, and are not really suited to any other duty. Each contains a pilot's compartment, message data banks, powerful broadcasting equipment, and jump drives permitting up to Jump-4. Space is so cramped aboard the xboats that they do not even contain maneuver drives. A ship makes its jump, relays its messages to the station immediately upon arrival by means of a high-speed, tight-beam radio transmission, and then waits to be picked up and towed into the xboat station by a specially built xboat tender, where it will be refuelled, refitted, and prepared for its jump to the next destination.

Meanwhile, the station records the messages and rebroadcasts them to one or more waiting xboats which then jump to other destinations. The operation is something like the ancient Terran pony express, and provides the fastest possible facsimile information transfer between worlds.

The xboat service emblem (above) was taken from a history of Terra by Professor Dinimbue of the University of Sylea. The professor found records of an organization called the Pony Express, but her knowledge of old anglic was not complete enough to equate the word pony with the Terran horse. The professor translated the word as *poni,* a beast of burden used on several worlds of the Sylean Federation. When the xboat service was organized, the emblem was designed, even though by then the professor's mistake had been discovered.

Xboat Stations: An xboat station is usually located near the edge of a system, where it can pick up the information beamed to it from incoming xboats with the smallest possible delay. The station contains receiving and rebroadcast equipment, to receive the xboats transmissions and send them in turn to other xboats and to the populated world(s) of the system. An xboat station contains facilities for refuelling and repair of the xboats and their tenders, as well as quarters for the pilots and the staff of the station.

Way Stations: Major overhaul of xboats is done at way stations, located along the xboat network. Way stations are equipped to perform drive overhauls and other maintenance operations beyond the abilities of the smaller xboat stations. One way station is provided for every eight to ten xboat stations.

The Imperial Courier Service: The ICS is charged with the transportation of items which cannot be transferred by xboat for security reasons and with the swift transportation of important government personnel. Normal type S scout ships are used, in addition to specially built couriers, which have been stripped of all cargo space and all but two cabins for maximum fuel storage.

The ICS also maintains communications with diplomatic missions to extra-Imperial regions with which the empire has relations. Travel by the ICS is restricted to the most vital Imperial personnel and materiel.

THE EXPLORATION OFFICE

Exploration Branch: This branch carries on the original purpose of the IISS . . . to explore beyond the borders of the empire and record what is discovered there. For this purpose, the exploration branch maintains many ship types not normally seen in other IISS duties, such as laboratory ships, free traders, cruisers, and several larger vessels. The normal type S scout vessels are not often used for deep exploration, but can be found conducting surveys, mapping, and other such activities for the EB.

Contact and Liaison Branch: Originally charged with the duty of locating, making first contact with, and maintaining friendly relations with non-human intelligent races. As the Imperium expanded, this office was given the additional duty of acquainting the various races of the Imperium with the cultures of each other and smoothing over the inevitable conflicts which arise between different cultures.

An additional duty of the C & L branch is the controlled dissemination of technological information to backward worlds within the Imperium and to bring them up to Imperial standards slowly enough to insure that minimal cultural shock results.

THE ADMINISTRATION OFFICE

The admin office contains the bureaucracy which keeps the IISS functioning smoothly.

Personnel: The personnel branch maintains the service records of all scouts and ex-scouts, hires and retires scouts, and transfers members of the service from one part to another as the need arises.

Payroll: The payroll branch is reponsible for payment of salaries, pensions, bonuses, and other rewards to the members of the IISS.

Procurement: This branch buys all equipment and material required by the IISS, from uniforms and microfilm readers to starships.

THE OPERATIONS OFFICE

Operations is responsible for the everyday functioning of all branches of the scout service. The operations office runs all scout bases, way stations, and other facilities of the IISS.

Maintenance Branch: This branch is charged with keeping all equipment in the service in good running order, and with repair and refitting of such surplus ships in the hands of ex-scouts as may be presented to a scout base.

Security Branch: This branch is in charge of protecting all facilities and personnel of the IISS from harm. Agents of the IISS security branch have the widest powers of any Imperial law enforcement agency.

THE TECHNICAL OFFICE

This office carries out tests and experiments on subjects as diverse as ship designs, drives, weapons, and FTL communications in order to constantly improve the quality of equipment used by the IISS.

THE IISS AT WAR

During time of war or other declared emergency, the detached duty office locates and recalls to service all suitable ex-scout personnel. The duties these ex-scouts are assigned to depends upon the nature of the emergency. A breakdown of the duties of the various offices is given below:

The survey office continues its duties, and additionally is charged with the provision of maps, charts, and other navigational aids covering the area of expected hostilities. The office is augmented by ex-survey office personnel.

The Detached Duty office, after calling up the ex-scouts, reduces itself to a skeleton organization and assigns its personnel to other duties.

The communications office, in addition to its normal duties, must keep the various arms of the Imperial military in constant communication with each other and with central headquarters. The staff of this office is heavily augmented from other offices.

All other offices are reduced to a minimum staff, and provide personnel to serve in the augmented offices. In addition, recalled scout pilots are assigned directly to army, navy and marine units to provide small craft pilots for landing craft, picket craft, and other fleet auxiliary vessels.

Recalled scouts with surplus scout craft (scout/couriers) are assigned crews, and their vessels are armed, refitted for military service and formed into scout squadrons.

These squadrons are attached to the navy, and the scouts assigned to them are transferred to naval command for the duration.

Scouts assigned to naval, army or marine units as small craft pilots, commo specialists or other duties are temporarily assigned rank in the appropriate service according to their duties. A scout piloting a landing boat for an army unit would be granted a temporary commission at rank 1, and for the duration of the war would receive pay and privileges normally accorded an army lieutenant.

Ex-scout personnel 66 years or older are exempted from recall to duty.

The following 12 pages are the first in a three part installment detailing the major modifications to the 1979 edition of High Guard. The Journal is publishing these pages as a service to our readers who have the 1979 edition and do not wish to purchase the 1980 edition.

The text contains all information necessary to design and construct starships (although it is abridged from the new edition); it entirely supercedes pages 21 to 34 (with the exception of the section of *Doing Deck Plans* on page 33). IN Form 3 (on page 35) remains unchanged.

These special pages have been placed in the center of the Journal to allow readers to remove them and bind them together with the other installments of the High Guard revision.

To Remove: Carefully pry up the center staples of the magazine with a screwdriver or other tool, and lift the pages of the installment out. Then fold the staples back down again to prevent other pages of the Journal from falling out. The pages of the installment may then be filed away and bound as the reader sees fit.

High Guard

The starships operated by the navies of the galaxy range in size from 100 to 1,000,000 tons and represent the most potent weapons available anywhere.

STARSHIP DESIGN

Starships are designed by navies, corporations, or individuals.

Design: Navies issue plans and specifications within eight weeks of the requirement; individuals use a naval architect (who charges 1% of the final ship cost) and receive the plans (from which the shipyard works) in about four weeks.

Availability: Starships (with jump drives) are constructed at a class A starport; non-starships are constructed at any class A or class B starport.

Technological Level: The tech level of the building starport determines the tech level of the ship. Equipment and components may not exceed the ship's tech level.

The Imperial Navy procures ships at tech levels 10 to 15. A Subsector Navy procures ships at any shipyards within its borders. A Planetary Navy procures ships at any shipyard within the borders of its subsector; alternatively, a Planetary Navy may construct ships on its planet, using local resources, even without a shipyard.

Construction Times: Ships of 5,000 tons or less can be built in 36 months or less. Ships over 5,000 tons require from 24 to 60 months to complete, based on conditions, volume of orders, and the degree of haste desired.

Ship Classes: Once a ship is built, ships with identical characteristics may be built in 80% of the original time, at 80% of the original cost.

BASIC STARSHIP COMPONENTS

The following components are basic to any starship.

Preliminaries: The ship name, type, and tech level must be decided upon.

The Hull: Hulls are identified by their displacement (in tons) and configuration. Hulls are constructed of metal at Cr100,000 per ton (modified by the configuration selected). Hull tonnage is expressed as a code given on the tonnage table.

Configuration is a rough description of the shape and design of the hull. Streamlining refers to the ability of a ship to enter atmosphere (partial streamlining allows fuel skimming but prohibits entry into world atmospheres for the purpose of landing). Non-streamlined configurations are built in orbit or on a vacuum world.

A planetoid may be used as a hull; they are available for the finding. However, a planetoid must allow 20% waste tonnage for structural integrity; a buffered planetoid can better withstand combat damage, but must allow 35% interior waste tonnage. The planetoid is free, but it costs Cr1,000 per interior (non-waste) ton for hollowing. It costs Cr100 per ton to bring the planetoid to the shipyard.

Drives: Starships require maneuver drives, power plants, and jump drives. Non-starships omit jump drives. All ships require power plants. Custom-built drives are produced and installed. Standard drives (at standard prices) from Book 2 may be used if they otherwise meet the ship's requirements; such drives use fuel as indicated by the formulas in Book 2.

The drive potential table indicates the percentage of interior space required for a

maneuver or jump drive. The drive tech level table indicates the minimum tech level required to construct the drive. The power plant table indicates the percentage of ship tonnage required per power plant number, based on tech level. The drive cost table indicates cost (MCr) to produce the drive, per ton of drive.

Drives are noted in the USP by drive number (from 1 to 6); use 0 if no drive is present. The power plant number must at least equal the jump number or the maneuver number, whichever is higher. Power plants can range from 1 to 50.

Fuel: Fuel tankage must be sufficient to contain a full load for the power plant and the jump drive. There is no cost for interior fuel tankage. Jump fuel requirements are 10% of the ship tonnage per jump number. The ship uses 10% of the ship tonnage in fuel per jump-number performed. Power plant fuel is 1% of ship tonnage per power plant number; power plant fuel also provides energy for the maneuver drives. The stated fuel requirement allows four weeks cruising (including time spent in jump space).

Any streamlined or partially streamlined ship may be equipped with fuel scoops which allow skimming gas from gas giants. On streamlined ships, this installation also includes equipment for drawing water from oceans. No extra tonnage is required; cost: Cr1,000 per ton of ship. If fuel scoops are installed, a fuel purification plant should be installed on the ship.

Unrefined fuel can result in misjumps. A fuel purification plant which allows refining of raw gas before it is used in drives. The fuel purification table indicates the models available: tech level is the level at which the plant is produced, tonnage is required aboard ship, and cost is price in credits. Cost is per 1,000 tons of fuel. A large ship with a large tank capacity requires several plants; a ship with a small fuel tank requires a fraction of the purification plant shown. No fuel purification plant can be procured for less than one third the tonnage and price shown.

Disposable fuel tanks may be added to the ship. These L-Hyd Tanks are fitted to the outside of the ship, and drop away before jump. The result is more interior space available for cargo and passengers. Such tanks must be replaced each time they are used, so they are practical only on runs to civilized areas. L-Hyd tanks are installed outside the hull, and increase the total tonnage of the ship; drives are reduced in their efficiency based on the total tonnage of the ship. When the tanks drop away, tonnage is reduced, and the drive efficiency is increased. L-Hyd Tanks cost Cr10,000, plus Cr1,000 per ton of fuel carried.

The Bridge: Every ship requires a bridge for control and for navigation. It requires 2% of the ship's tonnage (minimum: 20 tons) at a cost of Cr5,000 per ton of ship. The bridge contains all necessary equipment for the control of the ship except for the computer. Auxiliary bridges may be installed to replace the prime bridge in the event of battle damage. Costs are identical to those of the prime bridge.

Energy Points: Energy points are used to power computers, weapons, screens, and for agility. They are calculated with the formula E=0.01MPn, where E is the energy points available, M is the tonnage of the ship, and Pn is the power plant number. Note at tech level 15 energy points also equal the tons of power plant.

Powering Weapons, Screens, and Computers: Weapons, screens, and computers require energy points, and these must be provided by the power plant. Additional equipment may not be installed in reserve; the total energy point requirement for all equipment aboard ship must not exceed the energy point value of the ship.

Agility: Energy points remaining after weapons, screens, and computers are in-

stalled may be applied to the ship's agility rating. Divide remaining energy points by 0.01M; the result is agility points. Drop all fractional points. Agility is the ability of a ship to make violent maneuvers and take evasive action while engaging hostile targets. A ship's agility may never exceed its maneuver drive rating. For each power plant hit received (cumulative) the agility rating is reduced by one. A ship may refrain from using weapons or screens (computers may still be used) requiring energy points and receive an emergency agility rating (for that combat round only) equal to its current maneuver-drive or power plant rating (whichever is lower).

Computers: One computer must be specified; the basic requirement for this computer is based on ship tonnage. The computer models table indicates required data. Model number is the size of the computer. Model/1 is a standard computer model; Model/1fib is the same with a fiber optic back-up system; Model/1bis is an improved version of the standard model. Prices are in megacredits. Tonnage is required interior space for installation. CPU and storage refer to Book 2 when computer programming or adventuring. Ship size is the hull code which requires this computer as a minimum. Tech level is the minimum required to build the computer. Energy points indicates those needed to power the computer.

Computer model indicates the size of the jump which the computer can control. A model/1 computer is required on a ship which makes a jump-1; a model/5 computer is required on a ship which makes jump-5. Computer models greater than 6 do not allow greater jumps, and in any case, the ship would require the appropriate jump drive. The bis models (1bis and 2bis) are capable of controlling a jump one higher than their model numbers; 1bis is capable of controlling jump-2. Models bis and fib show a letter after the model number. This letter is the USP code for the computer. Thus, the USP code for a Model/5fib is E.

Armor: Hulls may be armored with strengthened exterior skins and interior bracing. Such armor is not possible on ships with dispersed structure (configuration 7). The armor factor is the type of armor used; if no armor is selected, the hull factor is zero. The armor table indicates formulae for the computation of armor tonnage and cost, based on the factor selected. Added armor value may not exceed tech level of the ship. Dispersed structures cannot be armored, and have a hull armor factor of 0. Planetoids (configuration 8) have an automatic hull armor factor of 3; buffered planetoids (configuration 9) have an automatic hull armor factor of 6 (additional armor may be added).

WEAPONRY

Ships may be armed for offensive or defensive operations.

Batteries: Weapon mounts of the same type may be grouped into batteries. More than ten mounts of the same type must be grouped into batteries. A battery may be as few as one turret, or as many as ten, but all batteries of the same type of weapon must have the same weapon code (USP factor). Each bay weapon is automatically a battery. The spinal mount of a ship (if it has one) is a single battery. On ships 1000 tons and under, mixed turrets (weapons of different types in the same turret) are allowed; in such cases, each weapon is a battery.

As a general rule, each battery may fire once each turn. Battery configurations are determined when the ship is built, not on the spur of the moment. The number of batteries which may bear on the target is determined from the battery table. One battery of each weapon always bears.

When a ship takes a hit, it loses a battery. Ships may change attitude (and are assumed to do so) so undamaged batteries can be brought to bear. If a ship has only one battery of a particular type, then a weapon hit on it reduces its weapon code; the battery is not eliminated. This rule also applies to spinal mount weapons.

Major Weaponry: A single major weapon may be specified; either a particle accelerator or a meson gun. The major weapons table shows required data. If a particle accelerator is selected as major weapon, then particle accelerators may not be selected for installation in bays, barbettes, or turrets. If a meson gun is selected as major weapon, then meson guns may not be installed in bays.

Bay Weapons: Weapons may be mounted in bays; bays are available in 100-ton and 50-ton sizes (size indicates the tonnage required) and must be installed during construction. Weaponry in bays is easily removed and replaced as the need arises.

One bay (regardless of size) may be installed per 1,000 tons of hull available. Tonnage not otherwise allocated to weaponry is considered available. For example, a 50,000-ton ship might be assigned a 5,000-ton type A meson gun; it may install 45 bays in addition to the major weaponry. 100-ton bays cost MCr1; 50-ton bays cost MCr0.5. They need not be assigned any specified weaponry during construction.

Weaponry in bays may be of five different types: meson guns, particle accelerators, energy weapons (fusion and plasma guns), repulsors, and missile racks. The bay weapons table indicates the cost for one bay weapon and its energy point requirement. The table also cross-references tech level and weapon type. The number at the intersection is the factor used for the weapon on the Universal Ship Profile. All bay weapons of the same type on a ship must be identical. Each bay weapon is a battery. Weapons installed in bays may not be allocated for turrets.

Empty weapons bays may hold small craft (air/rafts, ATVs, fighters, pinnaces, etc) or store cargo. Vehicles and craft may be carried in otherwise unused bays at 50% wastage (100 tons of bay holds 50 tons of vehicle or craft); a bay may launch one craft per turn. An unused bay may carry deadfall ordnance; such a bay is useless in battle, but is used to bombard worlds.

Turrets: Weapons may be mounted in turrets on the hull. Turrets require only that a hardpoint be designated and created during construction. One hardpoint is allowed per 100 tons of hull not otherwise allocated to weapons. For example, a 50,000-ton ship carrying a 5,000-ton type A meson gun and twenty 100-ton bays may designate 250 hardpoints for turrets. Hardpoints require no tonnage; but turrets themselves (when installed) do require tonnage. Hardpoints are designated at no cost.

Turrets are installed on hardpoints with single, dual, and triple configurations, and allow the mounting of lasers (beam or pulse), energy weapons (plasma or fusion guns), sandcasters, particle accelerators, and missile racks. Lasers, sandcasters, and missile racks may be mounted in any turret; energy weapons may be mounted in single or dual turrets; particle accelerators may only be mounted in single turrets. On ships with more than ten turrets, weapons may not be mixed within a turret.

Particle accelerators are also available in barbettes, which are larger turrets.

The turret weapons table indicates each weapon in column and the nine possible USP code ratings in rows. The number at the intersection is the number of weapons of the type indicated required to achieve the USP code rating. For example, the missile column shows that 18 missile racks are required to achieve the USP code

TONNAGE

Code	*Tonnage*	Code	*Tonnage*	Code	*Tonnage*	Code	*Tonnage*	Code	*Tonnage*
0	to 99	7	700	E	5,000	M	30,000	U	400,000
1	100	8	800	F	6,000	N	40,000	V	500,000
2	200	9	900	G	7,000	P	50,000	W	700,000
3	300	A	1,000	H	8,000	Q	75,000	X	900,000
4	400	B	2,000	J	9,000	R	100,000	Y	1,000,000
5	500	C	3,000	K	10,000	S	200,000	Z	reserved
6	600	D	4,000	L	20,000	T	300,000		

CONFIGURATION

USP Code	*Configuration*	*Stream-lined*	*Price Modif*
1	Needle/Wedge	yes	+20%
2	Cone	yes	+10%
3	Cylinder	partial	—
4	Close Structure	partial	-40%
5	Sphere	partial	-30%
6	Flattened Sphere	yes	-20%
7	Dispersed Structure	no	-50%
8	Planetoid	no	—
9	Buffered Planetoid	no	—

FUEL REQUIREMENTS

Jump Drive: 10% of ship size in tons per jump number of ship capability. This allowance supplies fuel for one jump of that number.

Power Plant: 1% of ship size per power plant number. This allowance supplies four weeks of activity on both the maneuver drive and the power plant.

BATTERIES

Ship Size	*Percent Bearing*	*Ship Size*	*Percent Bearing*
0 to 9	100%	Q	75%
A to K	100%	R	70%
L	95%	S	65%
M	90%	T	60%
N	85%	U	55%
P	80%	V to Y	50%

The number of batteries which may bear in combat is affected by the size of the ship. Only the percentage of batteries shown may bear (fire) on the target in space combat. Round fractions to the nearest whole number.

DRIVE POTENTIAL TABLE

	--- Drive Number --					
	1	*2*	*3*	*4*	*5*	*6*
Maneuver	2	5	8	11	14	17
Jump	2	3	4	5	6	7

Number is percentage of ship required.

DRIVE TECH LEVEL TABLE

	--- Drive Number --					
	1	2	3	4	5	6
Maneuver	7	7	8	8	8	9
Jump	9	11	12	13	14	15

Number is minimum tech level required.

POWER PLANT TABLE

Percent	*---Tech Level------*			
times	*7-8*	*9-12*	*13-14*	*15*
Pn	4	3	2	1

Number is percentage of ship tonnage required to produce a power plant of the desired size.

DRIVE COST TABLE

	--- Drive Number --					
	1	*2*	*3*	*4*	*5*	*6*
Maneuver	1.5	0.7	0.5	0.5	0.5	0.5
Power Plant	3.0	3.0	3.0	3.0	3.0	3.0
Jump	4.0	4.0	4.0	4.0	4.0	4.0

Number is cost in millions of credits per ton of drive installed.

HULL ARMOR

	----Tech Level------			
Percent	*7-9*	*10-11*	*12-13*	*14-15*
of ship	4+4a	3+3a	2+2a	1+a

Formula indicates percentage of ship required for armor (a is desired armor factor). Cost is MCr.3+.1a per ton.

MAJOR WEAPONS

Particle Accelerator					*Meson Gun*				
USP Code	*Tonnage*	*Tech Level*	*Cost (MCr)*	*Energy Points*	USP Code	*Tonnage*	*Tech Level*	*Cost (MCr)*	*Energy Points*
A	5500	8	3500	500	A	5000	11	10000	500
B	5000	9	3000	500	B	8000	11	12000	600
C	4500	10	2400	500	C	2000	12	3000	600
D	4000	11	1500	600	D	5000	12	5000	700
E	3500	12	1200	600	E	1000	13	800	700
F	3000	13	1200	600	F	2000	13	1000	800
G	2500	14	800	700	G	1000	14	400	800
H	2500	15	500	700	H	2000	14	600	900
J	5000	10	3000	800	J	1000	15	400	900
K	4500	11	2000	800	K	8000	12	10000	1000
L	4000	12	1600	800	L	5000	13	3000	1000
M	3500	13	1200	900	M	4000	14	800	1000
N	3000	14	1000	900	N	2000	15	600	1000
P	2500	15	800	900	P	8000	13	5000	1100
Q	4500	12	2000	1000	Q	7000	14	1000	1100
R	4000	13	1500	1000	R	5000	15	800	1100
S	3500	14	1200	1000	S	8000	14	2000	1200
T	3000	15	1000	1000	T	7000	15	1000	1200

Explanation: This chart shows the particle accelerators and meson guns used as major weaponry in large starships. Tonnage is the tonnage required in the starship hull for the weapon. Tech level is the technological level required to build the weapon. Cost is the price in millions of credits. Energy points is the total required.

BAY WEAPONS

100-ton Bay	——— *Tech Level* ———									*Energy*	*Cost*
Weapon Type	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*Points*	*(MCr)*
Meson Gun	—	—	—	—	—	—	3	5	9	200	70
Particle Accelerator	—	6	6	7	7	8	8	9	9	60	35
Repulsor	—	—	—	2	4	6	7	8	9	10	10
Missile	7	7	7	8	8	9	9	—	—	0	20

50-ton Bay	——— *Tech Level* ———									*Energy*	*Cost*
Weapon Type	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*Points*	*(MCr)*
Meson Gun	—	—	—	—	—	—	—	—	4	100	50
Particle Accelerator	—	—	—	3	3	4	4	5	5	30	20
Repulsor	—	—	—	—	—	—	—	3	5	5	6
Missile	—	—	—	7	7	8	8	9	9	0	12
Plasma Gun	—	—	—	4	5	6	—	—	—	10	5
Fusion Gun	—	—	—	—	—	7	8	9	—	20	8

Explanation: The number in the body of the chart is the USP factor of the type of weapon in the specified size of bay at the tech level shown. In addition, that weapon will require energy points in the amount shown. and will cost the amount shown in millions of credits. Note that costs and energy points are not dependent on technological level.

TURRET WEAPONS

USP Code Rating	*Missile*	*Beam Laser*	*Pulse Laser*	*Plasma Gun*	*Fusion Gun*	*Sand-Caster*	*Particle Accelerator*	*Particle Accelerator Barbette*
1	1	1	1	1	–	1	–	1
2	3	2	3	4	–	3	1	2
3	6	3	6	10	–	6	2	4
4	12	6	10	16	1	8	4	6
5	18	10	21	20	4	10	6	8
6	30	15	30	–	10	20	8	10
7	–	21	–	–	16	30	10	–
8	–	30	–	–	20	–	–	–
9	–	–	–	–	–	–	–	–
TL Available	7	7	7	10	12	7	15	14
Energy Points	0	1	1	1	2	0	5	5
TL Modif +1	13+	13+	13+	11+	14+	8+	–	–
TL Modif +2	–	–	–	12+	–	10+	–	–
Weight (tons)	1	1	1	2	2	1	3	5
Cost (MCr)	0.75	1.0	0.5	1.5	2.0	0.25	3.0	4.0

Explanation: The number listed in the body of the chart is the number of weapons of the listed type required to achieve the value (USP Code Rating) listed to the left.

TL Available indicates the first tech level at which the weapon becomes available.

Energy Points is the energy point requirement for each weapon installed of the type. For example, twenty fusion guns would require forty energy points.

TL Modifiers indicate a modification to the USP code based on higher tech levels. If all of the weapons involved are of the tech level indicated, then the code rating is increased. For example, 16 plasma guns normally have a rating of 4. At tech level 11, they would have a rating of 5; at tech level 12 or higher, they would have a code rating of 6. TL modifiers are not cumulative; only the best one is used. This tech level increase is the only way that weapons can achieve a rating of 9.

Weight is the tonnage of the turret containing the type of ordnance described, regardless of the number of weapons of that type mounted in it. Particle accelerators may be mounted only one per turret (or barbette). Plasma guns and fusion guns may be mounted two per turret. All other types may be mounted three per turret.

Cost is in millions of credits, for one of the weapon type listed.

SCREENS

---Nuclear Dampers---					*----Meson Screens----*					*---Force Field---*			
Code	*Tech*	*Tons*	*Cost*	*EP*	Code	*Tech*	*Tons*	*Cost*	*EP*	Code	*Tech*	*Tons*	*Cost*
1	12	50	50	10	1	12	90	80	0.2	1	15	10	400
2	13	15	40	20	2	13	30	50	0.4	2	15	15	600
3	13	20	45	30	3	13	45	55	0.6	3	15	20	800
4	14	8	30	40	4	14	16	40	0.8	4	15	25	1000
5	14	10	35	50	5	14	20	45	1.0	5	16	20	–
6	14	12	38	60	6	14	24	50	1.2	6	16	30	–
7	15	10	30	70	7	15	20	40	1.4	7	16	35	–
8	15	15	40	80	8	15	30	50	1.6	8	17	20	–
9	15	20	50	90	9	15	40	60	1.8	9	18	20	–

Explanation: Meson screens have an energy point requirement based on the size of the shielded ship: energy points required equal the factor given times 1% of the mass (tonnage) of the ship. For example, a 20,000-ton ship with a level 4 meson screen requires 160 energy points (0.8 x 0.01 x 20,000).

Force fields have no energy point requirements.

SHIP TYPE CODES

Primary	*Qualifier*
A Merchant	A Armored
B Battle	B Battle; Boat
C Cruiser; Carrier	C Cruiser; Close
D Destroyer	D Destroyer
E Escort	E Escort
F Frigate; Fighter	F Fast; Fleet
G Gig; Refinery	G Gunner
H	H Heavy
I,J Intruder	I,J
K Pinnace	K
L Corvette; Lab	L Leader; Light
M Merchant	M Missile
N	N Non-standard
P Planetoid	P Provincial
Q Auxiliary	Q Decoy
R Liner	R Raider
S Scout; Station	S Strike
T Tanker; Tender	T Troop; Transport
U	U Unpowered
V	V Vehicle
W Barge	W
X Express	X
Y Yacht	Y Shuttle; Cutter
Z	Z Experimental

COMPUTER MODELS

Model	*MCr*	*Ton*	*Capacity*	*Ship*	*TL*	*EP*
1	2	1	2/ 4	6	5	0
1fib (A)	3	2	2/ 4	6	5	0
1bis (R)	4	1	4/ 0	6	6	0
2	9	2	3/ 6	A	7	0
2fib (B)	14	4	3/ 6	A	7	0
2bis (S)	18	2	6/ 0	A	8	0
3	18	3	5/ 9	D	9	1
3fib (C)	27	6	5/ 9	D	9	1
4	30	4	8/15	K	A	2
4fib (D)	45	8	8/15	K	A	2
5	45	5	12/25	P	B	3
5fib (E)	68	10	12/25	P	B	3
6	55	7	15/35	R	C	5
6fib (F)	83	14	15/35	R	C	5
7	80	9	20/50	Y	D	7
7fib (G)	100	18	20/50	Y	D	7
8	110	11	30/70	—	E	9
8fib (H)	140	22	30/70	—	E	9
9	140	13	40/90	—	F	12
9fib (J)	200	26	40/90	—	F	12

Note: Capacity indicates CPU/storage; Ship is the ship requiring this computer as a minimum; TL is tech level. EP is the computer energy point requirement.

STARSHIP DESIGN CHECKLIST

1. Determine ship name (entry 2) and ship class (entry 3), and ship type (block 7).
2. Determine tech level (entry 4) of building shipyard.
3. Determine tonnage (block 8), and hull configuration (block 9).
4. Select jump drives (block 10), maneuver drives (block 11), and power plant (block 12).
5. Determine fuel tankage (entry 29a).
   A. Note maximum jumps (entry 29b).
   B. Consider L-Hyd Tanks and compute additional range (note in entry 29a).
   C. Consider Fuel Scoops, and Fuel Purification Plant (note in entry 29c).
6. Allocate Bridge and select computer (block 13). Indicate fibre optic back-up (entry 13b).
7. Select hull armor (block 15).
8. Compute energy points available (indicate in entry 30).
9. Select major weaponry such as particle accelerator (block 23) or meson gun (block 24) spinal mount.
10. Select bay weaponry such as repulsors (block 20), energy weapons (block 22), particle weapons (block 23), meson guns (block 24), and missiles (block 25).
11. Select turret weaponry; sandcasters (block 16), lasers (block 21), energy weapons (block 22), particle accelerators and barbettes (block 23), and missiles (block 25).
12. Select defensive screens; meson screen (block 17), nuclear dampers (block 18), and force fields (block 19).
13. Select fighters (entry 26) and ship's vehicles (entry 27). Design small craft USPs (note in entries 26 and 27). Note squadrons carried (block 26).
14. Determine ship's crew and allocate quarters. Note code in block 14.
    A. Consider frozen watch (entry 14).
    B. Consider ship's troops (entry 28).
15. Note cargo, passengers, and other areas (use entry 28).
16. Note ship's agility rating (in entry 30).
17. Note ship's purpose (entry 30).
18. Indicate dates required (entries 1, 5, and 6).
19. Insure that tonnage does not exceed hull and that cost does not exceed budget. Note cost in entry 30.

rating of 5. In addition, the table shows the minimum tech level at which the weapon is available, the energy points each individual weapon of the type shown requires, the tonnage required for a turret mounting the weapon (tonnage does not vary with number of weapons within the turret), and the cost for one weapon of the type shown. In addition, the table shows tech level modifications allowed. For example, six triple missile turrets (a total of 18 missile racks) merits the USP missile factor of 5; if the missile racks are tech level 13 or above, that factor is increased by +1, giving a missile factor of 6.

Screens: Ships may install a variety of screens which will reduce or eliminate the force of enemy attacks. Screens are passive; they are installed in the ship interior and operate continually, as opposed to defensive weapons such as sandcasters or repulsors. Screens include nuclear dampers, meson screens, and force field projectors.

Nuclear Dampers suppress nuclear reactions. Dampers are focused on incoming nuclear missiles and use an integral fire control system for efficiency. The nuclear damper table indicates required data.

Meson Screens are a variation of the nuclear damper which provide specific protection against meson gun fire. The meson screen table provides required data.

Force Field Generators project an energy-absorbing shell around a ship, and are known as black globes. All energy that contacts the black globe is absorbed and diverted to capacitors, doing no damage. The capacitors contained in the ship's jump drive store this energy. Jump drive capacitors equal .5% of the ship's mass, per jump number. Additional capacitors may be purchased; they cost MCr4 per ton. One ton of capacitors (in a jump drive or not) will hold 36 EPs.

Black globe generators are artifacts installed on a makeshift basis or experimental versions installed on tech level 15 Imperial warships. The force field table shows required data. Black globes have no energy point cost. Devices at tech leve! 15 are used by the Imperium; those at higher tech levels are shown for reference.

The acquisition of any black globe generator is probably the result of a lucky find on the part of a government, individual, or corporation.

SHIP'S VEHICLES

After weaponry has been selected, the ship's auxiliary vehicles are determined.

Ship's Vehicles: Atmosphere and surface craft are noted on IN Form 3. They should be completely described, or reference made to a complete description. Tonnage (at no cost) equal to the tonnage of the vehicles carried must be allocated (or empty weapons bays used). Some vehicles are shown on the table; others are given in Book 3. Prices given on the table supercede those in Books 2 or 3.

Small Craft: Small craft are carried at their own tonnage on ships 1000 tons and under; they require tonnage equal to 130% of their mass within the hull of larger ships, at a cost of Cr2,000 per ton.

Big Craft: Ships may also carry non-starships greater than 99 tons, or even other starships, provided proper arrangements are made. Such big craft require tonnage equal to 110% of their mass within the ship; the cost is Cr2,000 per ton.

Vehicle Launch Facilities: Vehicles require launch facilities.

1. Dispersed Structures: Ships which have a type 7 configuration hull carry craft and ships attached to their exterior. They need no additional fittings. All craft carried by a configuration 7 ship may be launched in one turn.

2. Launch Facility: Ordinary launch facilities for a ship allow one craft to

be launched per turn per 10,000 tons of hull. There is no extra cost or tonnage.

3. Launch Tubes: Rapid launch facilities may be created to allow the fast deployment of fighters or other craft. The required tonnage is 25 times the tonnage of the largest craft to pass through the facility; cost is Cr2,000 per ton.

Craft may be recovered at the same rates as launched.

CREW

Starships require a crew to operate and maintain the ship. The crew table shows the various crew size codes used. The number of personnel required is based on drives and equipment. If the ship is under 1,000 tons, then the rules stated in Book 2 should be followed. For ships over 1,000 tons, the rules given below govern.

Command Section: The ship should have a commanding officer, an executive officer, a computer officer, two navigation officers, a medical officer, and a communications officer. The section should have support personnel equal to 50% of the officers in the section. On ships over 20,000 tons, the section should equal 5 per 10,000 tons of ship. The commanding and executive officers are from the naval line; other members are from any of the naval service branches.

Engineering Section: The ship needs one engineering crew member for each 100 tons of drives installed. All members should be from the engineering or technical services branch. There should be 10% officers and 20% petty officers.

Gunnery Section: The ship needs a gunnery officer and one petty officer for each weapon type aboard. The spinal mount has 1 crew per 100 tons of weapon; bay weapons have a crew of two; turret weapons have a crew of one per battery. Each screen has a crew of four. The section should be 10% officers and 30% petty officers. Personnel are from the gunnery branch and the technical services branch.

Flight Section: If the ship has any launched craft, it needs a flight control officer, crew for each craft, and one maintenance person per craft. Launch tubes need a crew of ten. Pilots must be officers; maintenance crew are ratings. All officers are from the flight branch; petty officers and ratings are from the technical services branch or the crew. If there are three or more vehicles (air/rafts, ATVs), the section requires drivers and maintenance personnel (at least one per three vehicles).

Ship's Troops: Most ships over 1,000 tons have a military contingent averaging two per 100 tons of ship. Such forces are organized according to Mercenary, Book 4; their equipment should be consistent with the tech level of the ship. Ship's troops fill the role of security forces aboard ship. They are also used for damage control parties, manning of some weapons, and boarding actions.

Crew: Allow 2 crew per 1000 tons; 3 per 1000 tons if no ship's troops.

The *Frozen Watch:* If low berths provide enough places for a 50% overage in personnel (including ship's troops, if any), then the ship has a frozen watch. Replacement personnel are kept available in low berths for continuous replacement of casualties and battle losses; between battles, the frozen watch can be revived (with the standard survival throws) and used to restore lost crew.

Quarters: The ship captain, section commanders, and ship's troops commander require individual staterooms; all others are placed two per stateroom. Passengers must have single staterooms. Low passengers must have individual low berths. Staterooms take four tons (cost: MCr.5). Low berths take one-half ton (cost: Cr50,000). Emergency low berths (cannot hold frozen watch) take one ton and cost MCr.1; each contains four persons, all of whom share the revival roll.

SMALL CRAFT

Small craft use the alterations to the starship system shown below.

The Hull: Only hulls of configuration 1 to 7 may be built, at MCr.1 per ton.

Drives: Small craft do not have jump drives. No maneuver drive or power plant may be less than one ton; fractional drive values above one ton, such as 1.7 tons, may be retained instead of rounding.

Fuel: Fuel tankage may never be less than one ton. Fuel scoops are assumed to be provided (at no cost) in streamlined or partially streamlined designs. Drives for small craft can use unrefined fuel.

The Bridge and Computer: A bridge requires 20% of the craft tonnage (not less than four tons) at Cr25,000 per ton. It provides life support and couches for two persons and allows operation of the craft; no computer is necessary. A computer (standard models only; bis and fib are not allowed) may be installed instead of a bridge, and is required if the craft mounts weaponry. Both a bridge and a computer may be selected. If a computer is installed, but no bridge is present, then the computer is treated as one lower in combat (Model/2 is treated as Model/1; Model/1 is treated as Model/0, but at least the craft's weaponry may be used).

Weapons: A small craft has one hard point. The pilot may serve as gunner for sandcasters and one additional weapon type. Additional weapons types require additional gunners.

Crew: Only a pilot is required. Gunners are optional crew members; each must have a control couch and life support. Passengers also require at least a control couch and life support; passenger couches may be removed to free cargo space. Low and emergency low berths may also be installed.

Accomodations: Crew and passenger couches (one-half ton; Cr25,000) allow temporary transportation, to a maximum 36 turns in combat and 24 hours in routine operations. For periods greater than these, small craft staterooms (two tons; MCr.1) must be provided. They allow double occupancy (each person has the facilities for half a day) on non-commercial flights.

IN FORM 3– SHIP'S DATA

The Ship's Data Form (Imperial Navy Form 3) provides a uniform location for information about a specific ship or small craft. The starship design checklist and the small craft design checklist both refer to IN Form 3. In those checklists, the word entry (such as entry 3) refers to one of the areas in which information is written; the word block (such as block 26) refers to the Universal Ship Profile blocks and calls for the use of the USP factor.

For example, if a ship has ten triple turrets of beam lasers the designer might select three batteries of factor 5. The entry (entry 21, Lasers) would be three batteries laser-5, (abbreviated to three battery-5) indicating three batteries of factor-5 lasers. The notation (beam) might be added to distinguish them from pulse lasers. The numeral 5 should be placed in block 21 on the USP.

The conventions for entries (shown below) allow consistent placement of data.

In entry 28, indicate "Passengers=00" to show the passenger capacity.of the ship. Similarly, indicate "Cargo=000" to show the cargo capacity for the ship.

In entry 29, state short, medium, long, or very long endurance (for small craft).

In entry 30, indicate "EP= 30" to show the energy points. Similarly, indicate "Agility=2" to show agility factor. Finally, show "Cr100,000,000" for cost.

CREW CODES

Code	*Crew Size*
0	No Crew.
1	1 to 9.
2	10 to 99.
3	100 to 999.
4	1,000 to 9,999.
5	10,000 to 99,999.

FUEL PURIFICATION

TL	*Tons*	*Cost*
8	50	200,000
9	45	190,000
10	40	180,000
11	35	170,000
12	30	160,000
13	25	150,000
14	20	140,000
15	15	150,000

—Per 1000 tons of fuel.

ENERGY POINTS

The energy point formula is E=0.01MPn, where E is the energy point output, M is the tonnage of the ship, and Pn is the power plant number.

ACCOMODATIONS

Bridge: 2% of ship (min. 20 tons) at Cr5,000/ton.

Small Craft Bridge: 20% of craft (min. 4 tons) at Cr25,000/ton.

Staterooms: Four tons at Cr500,000.

Small Craft Staterooms: Two tons at Cr50,000.

Small Craft Couches: One-half ton at Cr25,000.

Low Berths: One-half ton at Cr50,000.

SHIP'S VEHICLES

Vehicle	*Cost (Cr)*	*Tons*	*Tech Level*
Ground Car	4,000	2	5 - 15
ATV (Wheeled)	30,000	10	6 - 15
ATV (Tracked)	70,000	10	6 - 15
Hovercraft	200,000	8	6 - 9
Air/Raft	600,000	4	8 - 15

AGILITY

Agility is computed from unused energy points. A=E/0.01M, where A is the agility factor, E is the remaining energy points, and M is mass of the ship.

DEFINITIONS

Starship: 100+ ton ship with jump drives.

Non-starship: 100+ ton ship without jump.

Small Craft: Ship 99 tons or less. No jump allowed.

Big Craft: 100+ ton ship carried on another ship.

Vehicle: Surface, grav, or aircraft.

FORMAT— use the following format for ships when not using IN Form 3.

BC-9514 Kinunir BC-A2446G2-100410-50202-0 MCr1373.762 1211.92 tons

batteries bearing 2 2 2 Crew=45.

batteries 2 2 2 TL=15.

Passengers=0. Low Berths=0. Cargo=63. Fuel=564. EP=72. Agility=0. Troops=35.

SMALL CRAFT DESIGN CHECKLIST

1. Determine craft name (entry 2), class (entry 3), and craft type (entry 7).
2. Determine tech level entry 4) of building shipyard.
3. Determine tonnage (block 8) and configuration (block 9).
4. Select maneuver drive (block 11) and power plant (block 12). Enter jump drive (block 10) as zero.
5. Determine fuel tankage (entry 29).
6. Compute energy points and indicate in entry 30.
7. Allocate bridge and computer (block 13). If no computer, enter zero in block 13.
8. Select weaponry from turret table, such as sandcasters (block 16), lasers (block 21), energy weapons (block 22), particle accelerators and barbettes (block 23), and missile racks (block 25).
9. Determine ship's crew (block 14).
10. Note passenger facilities, cargo, and other areas (use entry 28).
11. Note ship's agility rating (in entry 30).
12. Note craft's purpose (entry 30).
13. Note dates required (entries 1, 5 and 6).
14. Insure than tonnage does not exceed hull, and that cost does not exceed budget.

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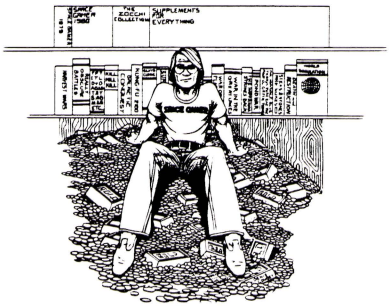

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by Roberto Camino

TICKET TO SWORDS

Gunn, the world the mercenary unit is currently on, after a long and bitter struggle, is finally in the last stages of unification. Regrettably, the unit fought against the victorious power, whose intrigues have led to the abrogation of the repatriatian bond. Furthermore, credible sources indicate that the winning hegemony intends to prosecute all mercenary contingents on trumped-up charges of atrocities and other violations of the Imperial Code of War. The unit does not possess sufficient funds to secure transport off-planet, and desertions are increasing.

A factor proposes the performance by the force of a cadre/security mission in exchange for deliverance from the present predicament. His nation, Brunhild, also promises standard salaries during the periods the force is training the local conscripts,. and double standard salaries when on security missions.

Brunhild is a small (200,000 inhabitants) nation on Joyeuse/Sword Worlds (0303-B-464778-A). The rightful government is being challenged by insurgents. Frankly, the rebels are well armed, being able to purchase modern weapons in other countries on Joyeuse, and a tough campaign is envisioned.

Amber Zone

Brunhild plans eventually to field a force of 2000, with 5000 reservists. The mercenary commander will determine the schedule for training. One stipulation is that local officers must be phased into command of the Brunhild troops as quickly as feasible. Brunhild suggests that while, at least at first, the mercenaries will lead the conscripts in guerilla supression actions, the native officers serve as assistants until they are deemed prepared to assume full

leadership responsibilities in their respective units.

Initially, the mercenary unit will be heavily committed to counter-insurgency operations in Brunhild's highlands, close rugged country ideal for ambush. Gradually, the trained levies will assume more of the burden of the search and destroy patrols and completely replace the unit when the mercenary force commander judges them ready.

Payment will be off-world passage and Cr 750,000, with a bonus of Cr 500,000 if turnover is accomplished within a standard Imperial year.

Referee's Information:

Brunhild's agent sketched a gloomy picture in the hope of convincing the mercenaries of his honesty. Actually, the situation is much worse. The current government gained power quite recently by a bloody coup, and is not recognized by its neighbors. The survivors of the legal government are heading a popular insurrection. The rebels are well armed and led. However, the other rather indifferent nations of Joyeuse are not the source of clandestine aid, as implied by the Brunhild representative.

Imperial traders, in an attempt to penetrate the Sword World's markets, were murdered by the illegitimate present regime. A merchant's organization, unable to gain redress, (other than the classification of Brunhild as an amber zone) from the Imperium's forces, has supplied the rebels almost exclusively. Thus, the mercenaries will have at most one tech level over the rebels.

The quality of the native forces raised and placed under the player's command will depend upon the instruction received, but in any case, their effectiveness is hampered by low morale amongst the lower ranks and the presence of a large number of political hacks in the officer positions. The exception is a company of parliamentary guards, equipped to the same standards as the mercenary unit, which will be loyal and formidable, but which will not be under the authority of the mercenary commander. The guard company will deeply resent the presence of the mercenaries, and cooperation between the two units will be minimal. The mercenaries will not learn of the true situation on the planet until after they have landed, at which time the officers of the mercenary contingent will be briefed on conditions.

Shortly after landing, the insurgents will contact the unit and urge them to join the revolution. They will argue that the present government is not recognized by any power, that the duplicity of that regime and fraudulent nature of the contract should be evident, and that the contract is thus null and void. Besides, once victory is achieved, the disposed despots will not be in a position to legally harass them.

Subsequent events shoud be determined by the referee.

Roberto Camino

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Traveller Stock Exchange

by Stan Mullins

"...Common stock in Oberlindes Lines plummeted 27 points on the Regina exchange before trading was suspended." Traveller News Service, Date: 097-1105.

A freewheeling intergalactic stock exchange can be an exciting source of financial gain or loss in a Traveller campaign. Thousands of credits can change hands as the market moves with the ebb and flow of sector-wide or galaxy-wide events; events which might even be the result of player's efforts for or against another company.

The first step in exchange simulation is to list the stocks that are available for purchase. The list should include all of the larger companies that are involved in your present campaign. The list must be diverse enough to give your players a wide choice while also reflecting the Tech Level of the planet on which the exchange is located. Planets with a tech level below 4 should not have the type of exchange simulated here.

Next, an operating price for the stocks must be determined. This can be done for all of the stocks at one time, or individually as players check prices before making their purchases. Roll 2D and multiply the result by 10 for each stock. This is the price in credits for which each individual share be purchased. It is recommended that all purchases be made in round-lots, 100's of shares, to simplify bookkeeping. A purchase or sales commission should be levied on every transaction; either a fixed percentage (1-2%) of the total price or a small fixed charge per share.

Determining the price movement of a stock can be handled in numerous ways. One method is to construct a random movement table. Use six rows and six columns. Assign each row and column intersection a number from 1 to 12; each number will be repeated three times upon the table. Throw 1D to give

the row coordinate and another to give the column coordinate, cross index the two and read the price movement directly from the table. This is the number of credits the stock will rise or fall in price.

Another method is to simply throw a designated number of dice. For example, a company that is very stable might throw only 1D, giving a range of price movements of from Cr 1 to 6. A company involved in a very speculative business might require a 3D throw, giving a price movement of Cr 3 to 18. The number of dice thrown reflects a particular stock's potential for gain or loss, so that this should be determined and made known to any player who wishes to buy a stock. Some players will seek out high risk stocks, cautious players will avoid them.

The direction of the price change can be both random or predetermined, During "normal" times, the stock price direction can be determined by a die roll. A throw of 1 or 2 means the stock drops in price, a 3 or 4 means no change, and the amount determined above should be ignored, and a roll of 5 or 6 means the stock rises in value. The referee should decide how quickly the market should move and make the price direction roll reflect that decision. Predetermined price change direction occurs when sector or galactic events affect local economic conditions. For instance, at the outbreak of a war, the stock prices of companies with some form of military production would almost always rise. News of a defeat of a sector's forces would make stock prices fall except those that have an interest in precious metals. The price movement would still have to be randomly determined but the direction of price change would be predetermined.

Stock prices move at the discretion of the referee. He or she may choose to roll for events daily, weekly, or at any other appropriate interval.

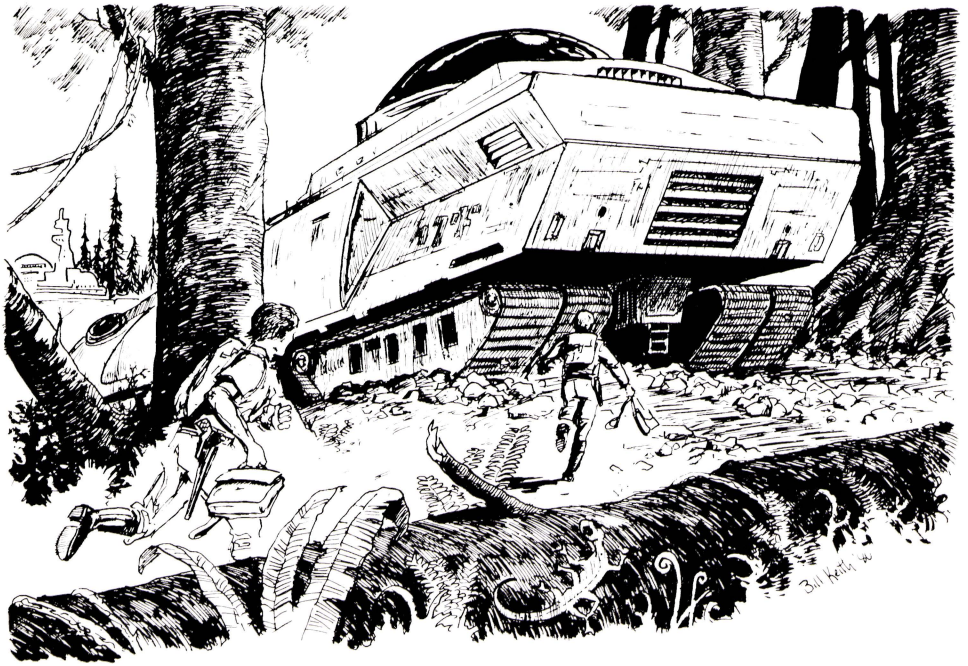
Although our contemporary exchanges quote stock prices in fractions, this is a useless complication (unless you happen to love fractional calculations!)

This type of simulation is a very rough approximation of a "random walk" stock market. It is designed to give the feel of a market rather than exactly duplicate elementary market operations. For this reason, such things as selling short, puts and calls and commodity contracts have been omitted.

Occasionally, the "random walk" will result in a stock continually falling in value. The referee could allow this to continue unchecked, indicating a bankruptcy or some other financial diseaster for the company, or the referee could decide that the stock did not fall that day after all, and arbitrarily declare a rise or no change in the stock's value. It is up to the referee to determine what will happen next. He or she can suspend trading until the price change direction roll indicates an upward move, dictate the direction change, or let the company fold (in which case the player's investment is totally lost). Note, however, that a bankruptcy by a company large enough to have stock traded on an exchange is rare.

The stock exchange should be well-planned and easy for the referee, to operate. Increased levels of complexity and sophistication can easily be added if the need arises (for instance, my exchange allows the previous price change direction to influence the new price change direction, so market trends can be simulated). Most Travellers' Aid facilities should have current market reports. If you use a city map in your campaign give the exchange a specific location and you are well on your way to creating a financial district.

Stan Mullins



by Ian Delaney

LOGGERHEADS

The planet Ranther (D-539598-5) is renowned for two things: its high humidity and its gigantic trees. The planet's low gravity and extremely rich soils allow the trees to grow to fantastic size, upwards of 300 meters in height and 20 to 30 meters in diameter. The normal respiration of the trees pours great quantities of moisture into the air, making the climate a veritable hothouse for plants of all sorts. Unfortunately for the inhabitants of Ranther, there is no great interstellar market for such great quantities of wood, (even though it is highly prized on some planets) because of Ranther's remote location and the great cost of interstellar travel.

The peculiar conditions of soil, gravity and atmosphere on Ranther have convinced certain interstellar cartels that the planet could be turned into an agricultural planet of great profitmaking potential, and have offered to finance the residents of Ranther if they can present a plan to clear the planet which has a good chance of success.

The trees' size, unfortunately, makes them very hard to cut down, making it very difficult for the planet's colonists to clear land for cultivation. In the century or so that Ranther has been colonized, land has been brought under cultivation only by great effort, and the population is constantly threatening to exceed the maximum dictated by the amount of arable land available.

Amber Zone

A means of rapidly clearing the planet's surface of the trees would permit large areas of Ranther to be devoted to the production of rare foodstuffs on a scale not possible

on most other worlds. Because of this, when General Constructiom, LIC sought to test its new logging ATV on Ranther, the residents offered every possible cooperation to them, especially after it was discovered thet in return, General would make the loggers available at a reduced rate.

The party is contacted by a representative of the planetary government. The government needs off-planet help to stop a logging machine which is out of control and will pass through a major city in three days.

Referee's Information:

The logger is 720 km away from the city, and is travelling at 10 kilometers per hour. The machine is thirty meters long and has four sets of tractor treads for propulsion. The referee should draw up terrain tables for animal encounters and initial ranges for sighting the logger.

When the players first see the machine, they will notice that it does not look much like a logging device. The machine has no obvious cutting tools, claws or grabbers.

The purported logger is in reality a war machine, being tested for the first time in an unpopulated area of this planet. It is armed with an auto-cannon turret on top, near the back, and two forward mounted laser cannon (equivalent to double strength laser rifles). The machine is constructed from a new, light-weight alloy that is impervious to anything short of anti-tank weapons fire. The weak points of the machine are the front windshield, the turret, and the rear hatch, which is almost undetectable.

Since the turret is mounted on the top, there is a blind spot inside of which the characters are safe from the auto-cannon. If the characters get inside they will find the machine has two levels, with the control center on the top level, in the front. The two crew are dead from laser wounds. The on-board computer, originally programmed to stop hostile infantry from entering the machine, has malfunctioned and has killed the crew. The autopilot will keep it travelling straight and will fire on anything that moves in its near vicinity.

If the players decide to try exterior attack the referee should take into consideration: immobilizing the treads, tipping the machine with explosives, or diverting its course.

Pay can be negotiated between the planet's government and the players, and they might earn a little pocket money by blackmailing General about testing a war machine on a populated planet. They might also try reporting the same fact to the Imperial authorities.

Ian Delaney

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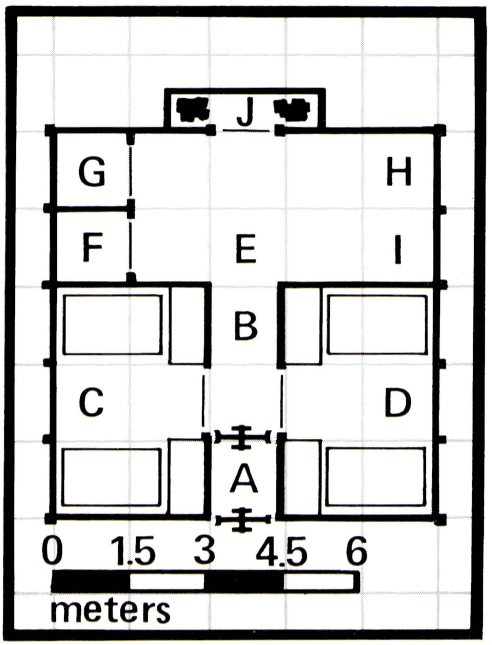
Model 317 Pressurized Shelter

In many cases, an extended expedition on the surface of an inhospitable world calls for an advanced base which can support and supply the expedition members without requiring their starship to remain. The Model 317 Pressurized Shelter, manufactured by GSbAG (Geschichtkries Sternschiffbau, AG) is intended to respond to just this need. The shelter is a commercial variant of a shelter in use by the Imperial Interstellar Scout Service, and dispenses with some scout features (such as a long range communicator, local area sensors, a heavy duty computer, and an atmosphere analyzer) in order to fit more easily into the commercial market. A tech level 8 construction, it is fully pressurized to provide standard atmospheric gases and includes a recycling system for both water and oxygen. Standing 7.5 meters square to a height of 3 meters, the construction is collapsible to 6 meters square with a height of 2 meters. For cargo hold transport, the shelter has a mass displacement of 6 tons.

The Model 317 Pressurized Shelter is intended to provide reasonable comfort for eight persons for well over a two month stay. Two semi-private bedrooms provide bunk beds to sleep four each, while a large living area allows recreation, scientific inquiry and investigation, dining, relaxation, and exercise with a minimum of crowding.

Entry to the shelter is attained through a manual double hatch air lock (A) which features recycling pumps to minimize air loss and atmospheric contamination. Once inside, the central corridor (B) leads back to the main living area. To each side of the corridor are identical bedrooms (C and D). Each contains four single beds (bunked, to conserve space) and personal item storage.

The main living area (E) contains



collapsible furniture for dining and lounging. A small galley (H) allows preparation of meals using the stored rations (I). Three small areas are situated off the main living area. The recycler (F) contains the mechanisms for both oxygen and water recycling. The fresher (G) contains the toilet, a shower, and a basin for personal needs. Finally, the power plant (J) is a self contained power source for the entire structure,

The Ship's Locker

providing energy for the recycler, the galley, and for heat and cooling as necessary.

Computer: A small, solid state computer of rudimentary ability is included in the shelter, and has outlets in each bedroom as well as in the main living area. It controls the operation of the power plant and the recycler, but performs little else on its own. It can be programmed for wake-up calls, remembering messages or information, and routine calculations.

Performance: The shelter is rated to withstand temperatures from -50 to +100 centigrade and (when properly anchored) can resist winds up to 200 kph. The standard load of rations is 800 person-days, and the power plant can function for up to 100 days without recharging.

Set-up: The shelter, in its stored mode, is totally unusable by individuals. It must first be erected on its site, anchored to the ground, and the power plant turned on. Expansion from collapsed to erected state takes two persons approximately 3 hours (one person takes 8 hours); installing the ground anchors takes another four hours for one person, but is not always necessary immediately. Turning on the power plant, and insuring that it is running properly takes about an hour for one person.

Taking down the structure takes less time: two hours for two people to collapse the shelter, and one hour for one person to remove the anchors. Turning off the power plant is only a few minutes work.

Cost: The Model 317 Pressurized Shelter is priced at Cr50,000, minus rations and personal equipment. The Shelter is available at GSbAG outlets on most tech level 8+ worlds within the Spinward Marches.

Marc W. Miller

continued from page 4

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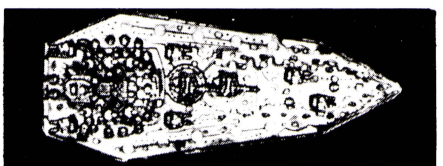

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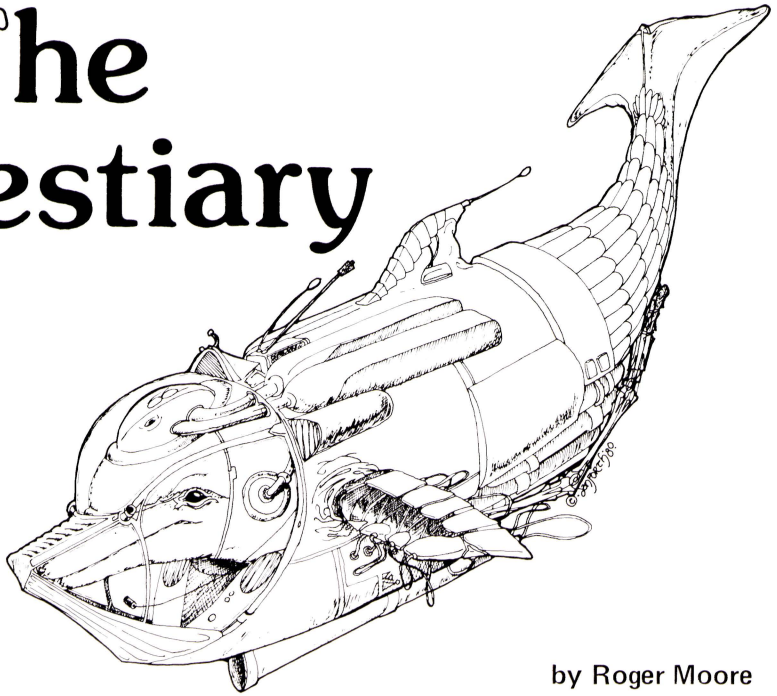
The Bestiary



by Roger Moore

Dolphin

(Tursiops galactis)

When humanity left the cradle of Terra, numerous other forms went along. Many creatures were introduced into new worlds, sometimes to supplement the local ecology and sometimes as part of an effort to create a new ecology. On worlds having extensive hydrographic cover, there was a need for creatures that could assist in the colonization and development of the oceans. Scientists settled on using the Atlantic bottlenose dolphin, enhanced by genetic engineering (or "geneering") to create a new and hardier species (T. galactis) as a partner to human settlers of these worlds. The exceptional intelligence of the dolphin allowed it to be trained in many areas of work in the ocean communities, and some worlds even went so far as to enlist them as soldiers in the local nautical force commands. These military dolphins proved to be invaluable allies as reconnaissance troops, and some are equipped with a special type of battle dress to increase their military capabilities.

The dolphin may be encountered on worlds with an atmosphere of 4-9, a hydrosphere covering 30% to 100% of the planets surface, and a minimum human population of 4 (10000). They are very similar to their terrestrial ancestor in appearance. T. galactis is about 3.7 meters long, weighs an average of 380 kgs, and has a slate grey coloration dorsally with a white ventral region. Layers of fat beneath the skin give dolphins protection equal to jack. They can achieve speeds of up to 40 kph while "cruising" through oceans waters (faster in short bursts). Being mammals, they breathe air and may remain submerged for up to 30 minutes before they need to breathe again. Dolphins are capable of breathing tainted atmospheres without a filter.

Dolphins are hunters, feeding on whatever local fauna are suited to their digestion. While they are able to deal deadly blows to larger creatures by ramming, they are friendly to humans and are almost never known to attack people without provocation. Military training may alter this generally pleasant nature. In determining reactions of dolphins when encountering a party of humans a DM of +2 is applied if the roll is 6 or less. The DM is +1 if the dolphin(s) have been given military training. If attacked, dolphins will defend themselves regardless of their initial reaction, and will flee whenever possible if outnumbered. Being intelligent, the referee should play them intelligently.

Dolphins, in the wild, form schools of 6-36. Roll 18 exactly on three dice (per member of the school) for that dolphin to have had training by humans. The females become sexually mature at age 4 and bear live young every year or two. Dolphins have been known to form pair bonds for life, and have a life span of 55 years.

The visual and auditory senses of the dolphin are highly developed, and they have excellent senses of taste as well. They have no sense of smell, being aquatic. The geneering performed on T. galactis has increased the sense of echolocation, the ability to detect objects by a form of biological sonar. The improvement allows dolphins to be highly aware of the terrain and moving objects within 100 meters of their front when submerged, and they are very difficult to surprise or ambush (DM +1 to avoid surprise).

Dolphins have limitations. While they have a limited empathic understanding of what humans may want of them, communication can be a serious difficulty. Delphinese, a simple signal/call/sign-language was developed to overcome this problem. Delphinese is understood by most dolphins unless raised completely in the wild, and there is a small chance that a feral dolphin will have learned the language. Humans may learn delphinese in a short time, (see book 4 for information on learning new skills, under instruction, p 13-14). Human instructors of delphinese are uncommon and live in coastal areas. Some dolphins can learn to speak human languages, but this ability is uncommon.

Other deficiencies of dolphins are their lack of mobility on land and the absence of manipulative organs. The latter problem was solved by genetic modification of the flippers to form short fingerlike projections at the ends which permit them to operate a specially fitted set of waldoes. Waldoes are artificial manipulative arms, which permit a dolphin to handle objects almost as well as humans. Grav belts or other mechanical devices overcome the mobility problem.

Additionally, to operate on land, a dolphin's skin needs protection from drying out and excessive exposure to sunlight.

Dolphins may develop an intelligence of D (13) and their intellgence does not decrease as they grow older. Dolphins, of course, have no rating for education or social standing amongst humans.

Next issue, we will examine dolphins' skills in more detail, and give some suggestions for referees in how to use them in a campaign.

Roger E. Moore

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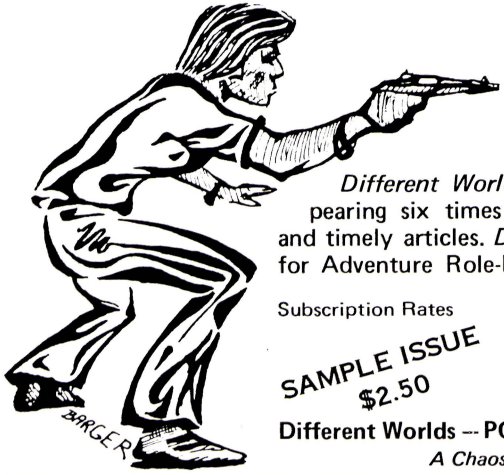

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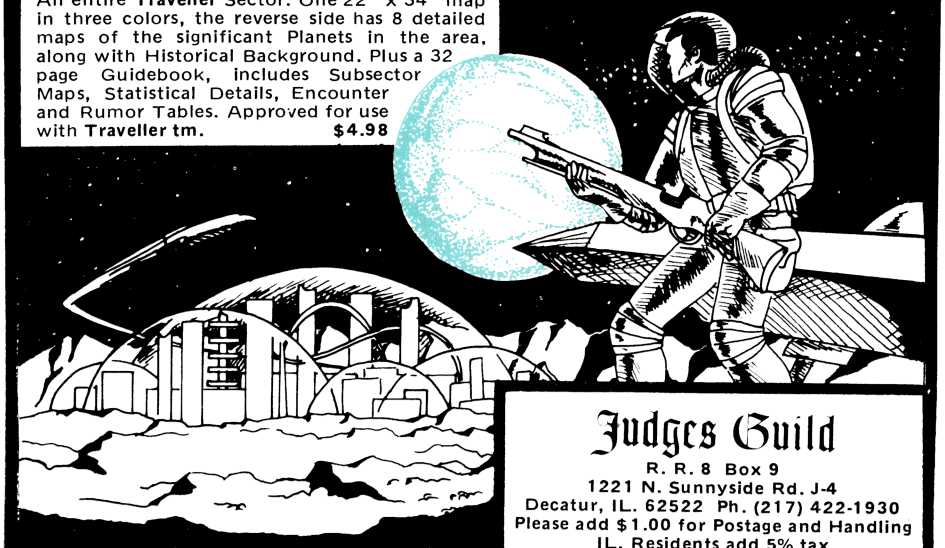

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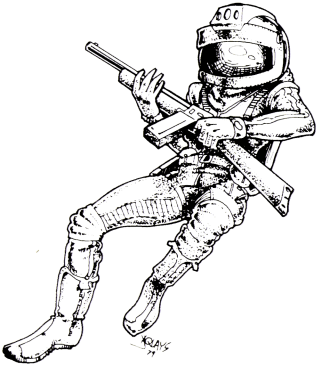

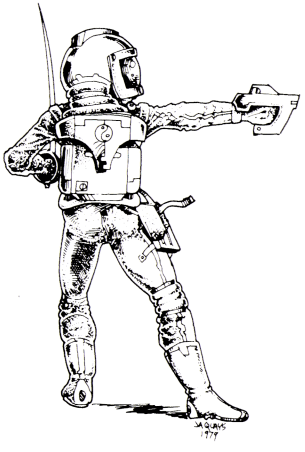

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